

VOLUNTEERING IN THE DIGITAL AGE: A STUDY OF ONLINE COLLABORATION TOOLS FROM THE PERSPECTIVE OF CSCL

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ABSTRACT

There is little evidence that helps to inform education, practice, policy, and research about issues surrounding the use of online collaboration tools for organisational initiatives (Brown & Duguid, 1991; Cook & Brown, 1999); let alone a single study conducted with regard to the volunteering practice of knowledge workers. The underlying objectives of the research study are to explore and describe how corporate volunteers experience and participate in learning in technology-rich environments; investigate the strategies, beliefs and intentions of corporate volunteers who are effective in learning in technology-rich environments and identify factors that enable or inhibit effective e-learning and make recommendations for those involved in corporate volunteering based on my understanding of their diverse needs, experiences and preferences.

Keywords: Volunteering, Online Collaboration, Computer-supported Collaborative Learning, Web 2.0.

INTRODUCTION

There is little evidence that helps to inform education, practice, policy, and research about issues surrounding the use of online collaboration tools for organisational initiatives (Brown & Duguid, 1991; Cook & Brown, 1999); let alone a single study conducted with regard to the volunteering practice of knowledge workers. There is a very diverse and complex set of motives for adopting web 2.0 or online collaboration within employee volunteering programs. This study aims to reveal a more complete picture of the use of Web 2.0 tools within the context of employee volunteering programs. It focuses on how online collaboration tools might be utilized by among geographically dispersed communities of employee volunteers through combined web-based tools both synchronous and asynchronous enabled through networked technology. The results from the project are analysed in order to further understanding of both the individual and collective experience of using technology as a corporate employee.

This research study reviews a range of online collaboration tools and evaluates how successful they have been in supporting employee volunteers in a global company in exchanging knowledge during their volunteering practice. These specific tools have had rarely used for an employee volunteering practice to date, and there may therefore be

value in exploring the potential role that online collaboration tools might play in the development of volunteering practices. The in-depth case study raises an awareness of an association between online collaboration and employee volunteering; highlight potential barriers to and facilitators of e-learning and offer methods and approaches for integrating related tools into the practice of employee volunteering. Such an approach could be significant in terms of seeking to make online collaboration as much a critical issue for the new trend of employee volunteering.

1. Research Background

One of the organizations developing learning programs on a global scale is IBM. IBM implements a program called Corporate Service Corps (CSC) where the employees work on cross-border volunteer projects, alone or in teams, for a period of two weeks to one year. Employees work with small businesses, government agencies, non-profit and charity organizations, and associations in varied industries and provide expertise to small businesses, nonprofits, and universities on specialized international assignments.

The study intends to answer the following research questions:

- How are collaborative learning tools used for the volunteering practice of knowledge workers?

- What are their beliefs about the benefits and challenges in using these tools for such a practice?

Collaboration is interacting to create a shared new or greater understanding about a process, product or an event that no one had previously possessed or could have come to on their own (Schrage, 1990). Collaborative learning tools refer to the online technologies such as wikis, blogs, instant messenger, discussion boards, synchronous chats and e-mail used among different individuals to accomplish a common task.

The employee volunteering program- called as Corporate Service Corps (CSC)- was launched in 2008; the IBM employees tried to tackle the economic and societal issues of the less developed countries they have been sent to. IBM considers the integration of online collaboration tools into this volunteering program to be a seminal process. It views the use of these tools throughout the program as a way to fundamentally shift how employees work together and can transform the volunteering process.

The CSC program gathers teams of IBM leaders with a diversity of skills, drawn from different countries and business units and places them in emerging markets to tackle important social and economic issues in collaboration with some implementation partners. The IBM Leaders work on projects in four-week assignments. Under this CSC program, IBM deploys employees in teams of 8-10 people for a four-week period within a country.

2. Literature Review and Conceptual Framework

The discussion of online collaboration cannot be complete without an overview of the literature about CSCL (computer-supported collaborative learning).

Collaborative learning – a short-term for CSCL as referred throughout the literature- is a social and interactive form of learning, which follows the objective to support the development of different competences.

Table 1 presents an overview of the shift from traditional to collaborative learning. CSCL is based on a learning process in which an individual learns together with others in mutual exchange of a topic, a task, or to solve a problem to acquire the same but also different objectives. The CSCL concept follows a constructivist learning theoretical

	Traditional Model	Collaboration Model
Goals of learning	Knowledge qualification	Competence
Knowledge is	Stored, processed	Construed
Paradigm	Reproduction, problem solving, understanding	Reflection, to invent new experience and active social practice
Technology use	Presentation, distribution, information	Collaboration, communication
Learners mode of involvement	Acquisition metaphor	Participation metaphor
Interaction type	Transfer model	Communication, exchange (interaction) model

Table 1. Characteristics of the traditional and collaborative e-learning model

approach. From this point of view, learning is a self-organized process which necessitates an active knowledge construction process, which in turn is influenced by pre-knowledge, experiences, and attitudes of the learner (Mandl & Krause, 2001, p. 4). In addition to that, the constructivism opens a second perspective on knowledge: "to acquire knowledge," "to share knowledge" or "to solve problems self-guided" (Arnold & Schussler, 1998, p. 78). In this sense it is important that for organizational members, learning situations are created in which self-organized, learner oriented, situative, social and communicative learning is supported (Mandl & Krause, 2001). To change the e-learning mode from a traditional mode of "learning material supply logistics" to a mode of CSCL, creates greater opportunities for learners to develop competencies in authentic learning situations and social interaction (Mandl & Krause, 2001).

CSCL, a subset of computer-supported cooperative work (CSCW), is seen as a critical component of virtual teamwork, facilitating communication, coordination and collaboration. Various labels that have been used to describe related software include, but are not limited to: computer-mediated communication systems, computer conferencing, electronic message systems, e-mail, collaborative systems, group decision support systems, coordination systems, cooperative systems, groupware, teamware, electronic meeting systems, CSCW, hypertext (text with communication) and computer-assisted learning systems (Johansen, 1988; Darr & Goodman, 1995; Hiltz & Turoff, 1978; Johansen, 1988).

CSCW is an interdisciplinary field that helps people design, implement, and use technical systems that support working

cooperatively. Including perspectives within the social, computing and allied human and information sciences the discipline covers research related to collaborative technology, groupware, socio-technical system design, computer-mediated communication, organization theory and design, the sociology of technology, management and business science, and technical innovations. Among the products are electronic meeting rooms, teleconference facilities, electronic mail enhancements, real-time and asynchronous technologies, and desktop conferencing (Bock & Marca, 1995). Hiltz and Turoff (1978) were pioneers in the field of CSCW. Their basic premise was that computers would become a vehicle to create and support electronic communities. Their research focused on computer conferencing, which they defined as any system that uses the computer to mediate communication among human beings, expanding the influence of the computer beyond communications to include all aspects of intellectual and social life.

The debate about CSCL as a new paradigm underlines that CSCL is indeed a different mode of e-learning. It goes back to Timothy Koschmann, who in 1996 published a book with the title: "CSCL - Theory and Practice of a new Emerging Paradigm." He argued that the change of the instructional models in the area of information and communication technology can be labeled a paradigm shift in the sense of Kuhn (1962). He analyzed that with CSCL the focus now lies on the group cognition rather than on the individual development-and that this point of view is incommensurable to the traditional, more individual view, and by that fulfills Kuhn's conditions for a new paradigm (Kuhn, 1962).

The same thought was later taken up by Sfard (1998), who formulated the incompatibility of the two paradigms in two metaphors: the acquisition metaphor (AM) and the participation-metaphor (PM). The AM views learning as a transfer of knowledge to the individual. The empirical research in this paradigm focuses therefore especially on the change of mental models of individuals. The PM localizes the learning process rather in the intersubjective-, social-, and group processes. Empirical research therefore focuses on participation patterns in the group process.

Sfard (1998), however, does not identify a paradigm shift but views both metaphors equally.

In his work "Computer Support for Collaborative Knowledge Building" (2001) Gerry Stahl stated that a paradigm shift from a rather individualistic to a more group oriented cognition has not (yet) taken place. The culturally transported individualistic views are too strong-in the western cultures- which are expressed in Descartes "cogito ergo sum." However, Stahl (2001) strongly recommends reinforcing CSCL research with a strong group- and participation oriented scope. John W. Maxwell (2002) from the University of British Columbia published an article in which he doubts the emergence of a new paradigm. He argued that the condition of incommensurability has not (yet) been met and one learning paradigm has not overcome the other one. Maxwell (2002) also identified a change but analyzes this from a pragmatic perspective as different types of the same genre who all have the same justification to exist and develop.

According to authors view, it should not be the goal to identify the one and only fitting and suitable paradigm when it comes to workplace learning. The author believe that a "one-size-fits-all" approach for e-learning and CSCL does not exist, neither for didactical design nor for empirical research. The core question then is, under which conditions individuals can learn successfully and in collaboration with media which might also be relevant for the CSC program. The aim has to be to describe the process of using these tools in an effective way order to reach certain defined objectives, in a collaborative way.

3. Methodology

In general the research procedure was aimed at describing the learner's personal background and (learning) context in which they integrate technology into their volunteering practice. Data collection consisted of three main sources:

- information derived from the online survey,
- digital artifacts such as blogs and wikis and
- transcripts from the interviews.

The online survey was used to gain a wider understanding of volunteers' experiences around digital artefacts,

whereas the case studies of individual volunteers (via online interviews) included describing the nature of the online collaboration activities carried out by the individual and exploring the context and background.

The selection of learners was done in close collaboration with the Senior Level CSC Program Managers. Corporate employees who have been mostly contributing to blogs and wikis were approached to capture their experience with e-learning. To avoid any pressure on participants to contribute potential participants were contacted (via a general email list, rather than individual email addresses). If insufficient numbers were obtained from this first general email, it was planned that a second reminder (again to the general email list) would be sent out. Given that CSC field work periods for volunteers in different countries vary the author anticipated that at least one reminder might be necessary as different participants might be out of email contact at different times. After this however, no further reminders were to be sent. If a volunteer indicated an interest in taking part, they were sent the information, if they did not respond within 2 weeks they were deemed to have withdrawn and were not contacted again.

The combination of methods allowed for rich empirical data, as well as for the triangulation of interpretations of the data that result from the different methods and different individuals targeted. The sampling strategy was to a degree pragmatic, working specifically with the related managers to identify appropriate volunteer cohorts to target.

The methodological approach consisted of two phases - a wider contextual review of the use of technologies across a broad spectrum of corporate employees using an online survey and a more in-depth series of individual case studies of technology use gathered through online interviews.

3.3.1 Phase One - Contextual Data

The survey was developed as the first instrument to gather background information about the way volunteers integrate technology into the CSC program. This was designed to gather general information about the individual selection of technologies and their experiences of working with different technologies. The survey was used to collect more generally information on how volunteers

engaged with e-learning and integrate technology into their volunteering practice in general. As learning is situated in a socio-cultural context which contributes to the individual experience, understanding the context is crucial to interpreting individual experiences.

The survey was sent out by the Senior Program Managers to reach a maximum number of volunteers. The survey was designed to be a mixture of qualitative and quantitative questions.

The intended use of the questionnaire was to find out about the actual status in terms of the engagement, challenges and prohibitions towards collaboration within the CSC teams. The questionnaire is intended to find out more about the technology part of collaboration. That means that questions about tools, technologies or processes for collaboration were asked.

3.3.2 Phase two – Case Studies

The second phase focused on the actual individual experiences. Based on the results of the survey and volunteers availability, a selection of volunteers were chosen for in-depth case studies on their online collaboration activities and experiences.

In addition to recruiting phase two participants from the sample of interested phase one participants, participants were recruited into phase two through a combination of purposive sampling and the snow-ball technique. Purposive sampling and snowball sampling was adopted in order to try to ensure that a range of different background were represented in the 20 case studies that I collated. Purposive sampling involved targeting employees who were contributing to blogs and wikis frequently. It was anticipated that targeting these individuals may enable me to recruit participants who might provide deep insights into the underlying reasons for the use of online collaboration tools. Snowball sampling involved asking participants if they knew of a friend or colleague who might be interested in taking part in the study and if so, if they could pass the project information on to them. Of the original 20 volunteers who participated in phase two, three joined the group as a result of being informed by another CSC team member and the remainder joined as a result of the e-mails sent out by as

described in earlier.

In phase one, participant responses to the proposed data capture methods revealed a strong preference for volunteers to provide the research study with links to digital artefacts that they had created themselves. Using participatory methods, it emerged that the focus for these artefacts would be the strategies that participants adopted when using technologies to support their volunteering practice. In terms of the media that participants chose to capture or represent their strategies, these ranged from Lotus Notes tools, to wiki and blog entries. The participatory nature of the project meant that the interview design typically required two to three meetings with participants in order to complete the interview.

In total, 20 interviews are carried out over a six-month period. Open-ended interview questions for different informants are adapted from the relevant literature.

Participants were also asked to provide digital artefacts in the form of links on any collaboration tools (blog, wiki, Lotus Notes tools) to demonstrate the different ways in which they were using the technology. Once the data was collected, I met again with the participants online via Skype and carried out a semi-structured interview to help contextualise and extend the findings emerging from the links.

The use of links provided a means of gathering 'in-situ' use of technology which could then be interrogated in more depth in the follow up interviews.

Furthermore, the outcomes of these links were then used to feed into the subsequent interview with the volunteer to reflect on the technologies they have used and the collaboration strategies that they have developed as a result.

All interviews were held via the online communication tool Skype and lasted between 30-50 minutes.

3.4 Data Analysis

SPSS was used to analyse the quantitative data; qualitative analysis was divided up into appropriate sections and manipulated in Excel. Open comments made regarding responses were copied and pasted into an adjacent column in the spreadsheet. First a broad descriptive

analysis was carried out across all the available data to see if some general patterns emerge. These patterns were then further analysed to see if there are differences between the volunteers. The qualitative data was then organized and coded according to emerging patterns and the results ranked, proportioned or directly quoted to support the quantitative findings. A cross table matching online survey and interview details was created. Table 2 one gives the breakdown of the data collected.

After gathering data at the level of individual participants, I used several analytical methods to analyse each case study individually followed by an overarching study across the cases (study of cases). The central purpose of analysing the qualitative data was to extract, generalise and abstract from the complexity of the data, evidence concerning online collaboration activities and experiences in order to answer the main research questions. Relevant extracts from the interviews were transcribed and used to complement and extend the survey findings. Importantly, these extracts were used to provide more in-depth information about the strategies that the participants used and how the technologies influenced their approach to collaboration and the impact this had on their knowledge-sharing activities.

To increase scope, depth and consistency in methodological proceedings, triangulation is conceptualized as a strategy for validating results (Patton, 1990). This study is triangulated based on questionnaires, online interviews and review of digital artefacts using three perspectives to interpret the data, verified by the members of the research team (Patton, 1980). In the analysis process, the majority of transcription was conducted using the standard method of playing the recording, bit by bit, pressing pause and then typing. Transcripts once typed were e-mailed to participants for correction and additions. The transcripts have provided the basis from which issues are noted and strategies developed into artefacts. All verbatim transcripts of the online interviews with the interviewees were imported into NVIVO for further analysis

Phase one- context	Phase two- case studies
Survey	Interviews
12	20

Table 2. Breakdown of data collected

and coding. Table 3 provides an overview of how the proposed coding categories align with research questions and interview questions. Efforts have been made to critique and evaluate the initial theme categories related to the use of collaboration tools within the CSC program. No preset conceptual categories have been used in text analysis, though the specificity of the questions asked may have directed the interviewees' responses in such a way as to create the emergent categories. Digital artefacts such as entries into the CSC program wiki, blog or Lotus Notes tools served as supporting sources. The themes and the categories to which they belong have been debated and modified when there are differences until a consensus is reached among the participants.

The broad interpretive framework for the study combined phenomenographic and ethnographic approaches, which are geared towards the description of particular cases and individual approaches in the way they use technology to support their collaboration throughout the CSC program. The kinds of technologies and strategies used throughout the CSC program were identified together with the volunteers' experiences.

4. Findings

One of the key things to note from the results is the wide variety of views and experiences expressed by the CSC participants. Their views were not always similar. Some participants felt that collaboration tools can enhance efficiency while some of them felt that technology may reduce efficiency. Their experiences were also not always similar. While some of the participants reported that generic e-learning support was unhelpful some of them reported that it was helpful. Due to this diversity in perceptions and attitudes it is misleading to talk of CSC participants as though they were a single population. As CSC participants are unlikely to have a single voice when expressing their experiences and beliefs related to the use of online collaboration tools it is important to avoid the assumption that all participants' needs for using the collaboration tools are the same (Table 4).

Authors interpretation of the results obtained from this study has led me to identify two key concepts: digital agility and digital decisions. The term "digital agility" was first coined by E.A Draffan & Rainger (2006). Draffan & Rainger (2006)

Research Questions	Mapped against Interview Questions	Mapped against an Interview coding framework
How are collaborative learning tools used for the volunteering practice of knowledge workers?	<p>1.How does your organization make an effort to increase the use of online collaboration tools within the context of the CSC Program?</p> <p>3.How many times a day do you use any of the online collaboration tools to exchange information with your colleagues and other related individuals involved in this CSC Program? Please give me some examples of what you use and how you use it.</p> <p>8.What are the factors that can make you feel more engaged with online collaboration tools?</p> <p>10.Is there anything else about your use of online collaboration tools that I could have asked you? Or anything else you would like to add?</p>	<p>DESCRIPTIONS OF USE (i.e. where participants describe how they use online collaboration tools throughout the CSC program)</p> <p>STRATEGY CHOICES:Reasons why participants use online collaboration tools throughout the CSC program</p>
What are their beliefs about the benefits and challenges in using these tools for such a practice?	<p>2.What are the key factors/building blocks that enable/disable your organization to facilitate the use of the use of online collaboration tools within this context?</p> <p>4.Which tooldoes give you the best opportunity to provide knowledge sharing opportunities with your colleagues?</p> <p>5.Are there any downsides to using online collaboration tools for professional knowledge-building and sharing? For example?</p> <p>6.Do you think using technology – specifically for knowledge-building and sharing in this CSC program can be improved? Please give specific examples.</p> <p>7.What are your key concerns of the use of online collaboration tools in relation to knowledge-sharing?</p> <p>9.What are the benefits that you expect in return from your contributions to the exchange of idea via the use of online collaboration tools?</p>	<p>FEELINGS ABOUT USE (confidence, difficulties, concerns)</p> <p>SOURCES OF SUPPORT (who provides the support; influential people)</p> <p>NATURE OF SUPPORT (what kindof support)</p> <p>EVALUATION OF SUPPORT (howuseful or effective was the support perceived to be)</p>

Table 3. An overview of how the proposed interview coding categories align with research questions and interview questions

Research question	Findings
How are collaborative learning tools used for the volunteering practice of knowledge workers?	<ul style="list-style-type: none"> - 92% (11 out of 12) participants selected the part of team members as a main way to share knowledge, experiences and best practices; – Lotus Notes and Lotus Sametime are common used tools; – The personal interaction as seen as preferred method as seen with six responses to "team meetings"; <p>Many of the participants swap and change from a range of technologies; are well-informed about the strengths and weaknesses of particular technologies in relation to their social affordances and impact on collaboration and have developed a range of sophisticated and tailored strategies for using technology to support their collaboration.</p> <p>The majority of participants use instant messaging; participate in discussion forums; use internal Lotus Notes platform or open social networking sites such as Ning, FaceBook and upload videos or photos onto the Internet. Most of the participants access online learning materials via Edvisor (e-learning package developed for CSC program).</p> <p>Many participants find they have to make sophisticated and complex decisions about how they use technologies to support their collaboration. Several factors influence this decision-making, most notably the affordances and properties of technologies. In making these decisions, sometimes participants perceive they are engaged in a delicate balancing act; sometimes participants feel the choice is rather limited.</p> <p>By perceiving the educational affordance of the tools and creating learning resources that can be accessed through these tools, they went beyond its original design, tapping into the open potential of the tool.</p> <p>As successful interaction between users requires a certain amount of common ground the volunteers tried to build this common ground by conveying the best practices through the means of these tools.</p> <p>Due to the perceived social affordances of the online collaboration tools, participants were able to move beyond the traditional boundaries of the volunteering practice.</p> <p>'Volunteering 2.0'. It is the combination of the technological affordances of social software, with new informal learning agendas and priorities, that offers the potential for transformational shifts in employee volunteering practices.</p> <p>The volunteers were transacting with the specific purpose of facilitating, and validating understanding, and of developing capabilities that will lead to further learning.</p>
What are their beliefs about the benefits and challenges in using these tools for such a practice?	<p>Two personal factors that appeared to influence participants' decisions about technology use are:</p> <ul style="list-style-type: none"> A tendency to keep things visible throughout the program; A feeling of connectedness <p>The level of engagement, and effectiveness that the tools provide also relate to their widespread adoption among the users.</p> <p>Blogs have a 'cathartic' nature as they offered the opportunity to reflect on their experiences and to learn about different point of views.</p> <p>The sociability aspects of these tools provide not only support for conversational interaction; but also support for social networks and relationships between people.</p> <p>Problems were mostly of a logistical nature, with time constraints and scheduling issues receiving the greatest prominence.</p> <p>The tools cannot be used for arriving at a precise decision</p> <p>The clarification of mutual roles and responsibilities is essential to effective utilization.</p> <p>The volunteers could learn from others in their team and those who are not in their team but have private connections in community to adjust their own knowledge level.</p> <p>Online collaboration tools provide the opportunity to extend one's personal space.</p> <p>Although the CSC participants are well aware of the collaborative nature of these tools due to privacy and irrelevant content they may not always use these tools to their highest potential.</p> <p>The number of pre-work modules might be difficult to agree upon and content should differentiate between what is information and knowledge.</p>

Table 4. Mapping Of Research Questions To Main Findings (cont...)

Research question	Findings
	CSC participants, for the most part, feel they would survive without technologies, but the value that they place on technologies in terms of having a positive influence on their volunteering practice, means that they would rather not have to cope without technologies.
	The different tools enabled the volunteers to navigate through information, find personal routes and pathways.
	The sociability aspect of the tools privileges a less hierarchical form of volunteering based on small teams and the use of technology to access, create, share and continually improve ideas.
	The collaboration tools used by volunteers not only support social interaction, feedback, conversation and networking, but are also endowed with a flexibility that enables 'collaborative remix ability'.
	The benefits of making connections to others and communicating through these tools provide an impetus for reflection.
	Collaboration tools can provide the building blocks for an environment that enables multiple forms of support, as it allows volunteers to connect, interact and share ideas in a fluid way.

Table 4. Mapping Of Research Questions To Main Findings

digital decisions. The term "digital agility" was first coined by E.A Draffan & Rainger (2006). Draffan & Rainger (2006) defined agile as:

[...] an iterative and incremental (evolutionary) approach to technology use which is performed in a collaborative manner by people with "just enough" ceremony that produces successful outcomes in a cost effective and timely manner meeting the changing needs of its stakeholders."

Evidence for an evolutionary approach to technology use can be drawn from the data where participants expressed preferences for "trial and error" in terms of learning how to use collaborative technologies. Evidence for a collaborative approach can be drawn from the data where participants talk about seeking help and support from peers. Cost-effectiveness, for the most part, relates to participants' desire for technology use to be cost-effective in terms of time; where time is linked to time to learn how to use the technology and the time saved when technology improves efficiency in terms of finding information.

Building on Draffan's early definition of agile I would extend the concept of agility to include the following (Table 4).

Swapping and changing from a range of online collaboration tools;

Being well-informed about the strengths and weaknesses of particular online collaboration tools in relation to usability and impact on learning;

Developing a range of sophisticated and tailored strategies for using online collaboration tools to support their learning;

Being extremely familiar with technology;

Being aware of what help and support is available.

The term "digital decisions" was first coined by Neil Selwyn (Selwyn, 2006) who talks about digital decisions in the context of users making empowered decisions not to use technology, where use or non-use of technology involves genuine choice. Recognising that users are able to exercise such choices therefore involves:

[...] recognising the agency of individuals in not making use of technologies which may have a limited relevance, utility or even pleasure in the context of their everyday lives.

From the CSC data there are examples where participants have chosen not to use technologies; for example not to use certain online collaboration tools because they just don't "get on with them". The data also reveals that many CSC participants find they have to make sophisticated and complex decisions about how they use technologies to support their volunteering practice. Several factors influence this decision-making process, most notably the affordances and properties of technologies.

The results from the study suggest that the opportunity of both establishing a connectedness to other volunteers and making their volunteering process highly visible are reasons why participants liked using online collaboration tools

mostly. The value of peer support identified by CSC participants was also identified where interviewees stated that they feel like part of a wider, networked community of peers who share resources and ask for help.

Finally, where there is a certain amount of dependence on collaborative technologies in the widest sense i.e. that is any technology that makes collaboration easier. CSC participants tended to name particular items and expressed strong views, rather than just liking or using a particular tool.

5. Discussion

The two identified concepts of "digital agility" and "digital decisions" provide useful links to the theoretical discourses of online collaboration.

Research studies undertaken by Selwyn (2006) and Future Lab (2007) have suggested that when people make a choice or decision not to use technology, even though access is available to them, then they are making an empowered choice. In this sense, an integral aspect of an online tool (non-)use is that of individual agency and choice (FutureLab, 2007). Several factors influence this decision-making, most notably the affordances and properties of technologies. In making these decisions, sometimes participants perceive they are engaged in a delicate balancing act; sometimes participants feel the choice is rather limited. Above and beyond having the necessary access to online tools, online collaboration is therefore predicated on the ability to make an informed choice when and when not to make use of these tools (FutureLab, 2007). Online collaboration is not therefore simply a matter of ensuring that all individuals make use of these tools throughout their day-to-day lives, but a matter of ensuring that all individuals are able to make what could be referred to as 'smart' use of technology, i.e. using them as and when appropriate. In this sense not making use of an online tool can be a positive outcome for some volunteers in some situations, providing that the volunteer is exercising an empowered 'digital choice' not to do so (FutureLab, 2007).

The results from this study offer examples of empowered choices being made by CSC participants; for example many of the participants swap and change from a range

of technologies; are well-informed about the strengths and weaknesses of particular technologies in relation to their social affordances and impact on collaboration and have developed a range of sophisticated and tailored strategies for using technology to support their collaboration. However, there are also times when participants are choosing not to use these tools because they have a preference for the more conventional methods such as face-to-face discussions or brainstorming. The data also suggests areas that would be worthy of further exploration in terms of understanding whether or not the decisions made are actually empowered ones or not. A good example of this would be to provide meaningful and relevant information about how much "time" might be saved in the long run in terms of efficiency and improved collaboration outcomes. The results therefore build on existing theories and discourses regarding the use of online collaboration tools, but also challenges us to expand our understanding and application of these theories.

Furthermore, in relation to the scope of this paper I would also suggest that we rethink the model of online collaboration presented in Ryberg et al. (2010) in relation to the concept of "Volunteering 2.0" as mentioned before. 'Volunteering 2.0' refers to the combination of the technological affordances of social software, with new informal learning agendas and priorities, that offers the potential for transformational shifts in employee volunteering practices. I therefore argue that it is crucial to address at least four aspects when planning activities for the practice of "Volunteering 2.0": The collaboration process, the motivation, the infrastructure (e.g. the system), and the resources/content (Figure 5).

For each of these axes or continua the participant can be more or less in control, or the ownership can be distributed equally between them. The axis of the collaboration process concerns who controls the flow of the collaboration or interactional dependencies, and how this control is managed. This axis is very similar to the problem and process axes explained in Ryberg et al. (2010) and it concerns also who controls 'the process of collaboration' i.e. what should be investigated and how.

In terms of the learning process, the CSC program can be

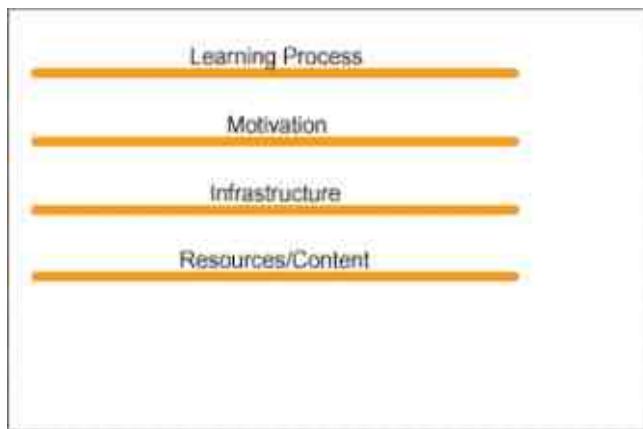


Figure 5. Continua between individual control in web 2.0 collaboration (Adapted from Ryberg et al., 2010)

regarded as an informal learning activity as there is no predefined curriculum or structure for training. The volunteers could learn from others in their team and those who are not in their team but have private connections in community to adjust their own knowledge level. The different tools enabled the volunteers to navigate through information, find personal routes and pathways. The benefits of making connections to others and communicating through these tools provide an impetus for reflection. The sociability aspect of the tools privileges a less hierarchical form of volunteering based on small teams and the use of technology to access, create, share and continually learn new ideas. The volunteers were transacting with the specific purpose of facilitating, and validating understanding, and of developing capabilities that will lead to further learning. By perceiving the educational affordance of the tools and creating learning resources that can be accessed through these tools, they went beyond its original design, tapping into the open potential of the tool.

The motivation continua concerns questions like: Is the current process of online collaboration driven or fuelled by the participant's own motivation or is the motivation of a more external nature i.e. volunteering task demands? When the expected learning outcomes are more or less explicitly stated and necessary to adhere to, we should be careful in assuming that the 'tools' in themselves are the motivation. We should be careful in assuming that we can easily transfer the 'funniness' or motivational structures from informal contexts such as the volunteering program to the

formal arena. The CSC participants mentioned that due to their tendency to keep things visible throughout the program and a feeling of connectedness the feel motivated to use these tools. CSC participants, for the most part, feel they would survive without technologies, but the value that they place on technologies in terms of having a positive influence on their volunteering practice, means that they felt motivated to use these technologies. Also, the volunteers felt motivated to build a common ground by conveying the best practices through the means of these tools. These discussions also pose challenging questions concerning whether an activity is really online collaboration if it is entirely based on extrinsic motivation/demands, or whether activities must include a certain level of intrinsic motivation to be "genuine" online collaboration activities.

The infrastructure continua concerns questions of who controls or manages the infrastructure and how. By infrastructure, the author primarily mean the organisation of tools, although it can be difficult to separate the orchestration of tools from the axis of the collaboration process. However, concerns and questions do arise around the ownership and control of the tools of production and the content. This is also related to whether the tools are thought of as 'context-specific' or imagined to transgress boundaries of the volunteering practice and be potentially useful in other contexts (a life-long learning perspective) e.g. is a blog primarily designed for reflection to meet particular development goals, or as a means for scaffolding and promoting individuals' life-long learning and continuous blogging? These different strategies and issues of ownership might also structure and affect individuals' motivation and responses to the use of Web 2.0 tools in complex ways (Dohn, 2009). Due to the perceived social affordances of the online collaboration tools, CSC participants were able to move beyond the traditional boundaries of the volunteering practice.

Related to the former, the resources/content continua concerns questions regarding the creation of and ownership over content, but also what kind of resources are deemed acceptable with regard to the volunteering practice. Within the context of employee volunteering, the task is not only to respond to a particular question with a

quick solution, rather the process, active production and construction of the response is part of the collaboration process, and thus also part of a satisfactory outcome. The collaboration tools used by volunteers not only support social interaction, feedback, conversation and networking, but are also endowed with a flexibility that enables '*collaborative remixability*'.

The author should emphasize that using a Web 2.0 technology in itself does not constitute Web 2.0 collaboration. Rather, it is the organization or orchestration of the online environment as a whole, which can be more or less collaboration-oriented. Consequently, the model stresses that the extent of online collaboration depends on how the power is distributed and managed across the different dimensions (and it would be questionable to which degree something could be considered online collaboration if only few individuals fully exercise control over all four dimensions).

The author also developed a series of more concrete questions (Table 5) intended to provoke reflection, as to make practitioners become aware of the tensions and potential pitfalls when integrating online collaboration tools into the employee volunteering practice.

Conclusion

The concept that the process of employee volunteering should move away from the conventional model is

The collaboration process:

How is the collaboration organized? Is it e.g. formal and/or informal?
What is hierarchical form of volunteering?
Which social affordances of the online collaboration tools used are of primary importance? (facilitating, and validating understanding, developing capabilities, increasing visibility, making connections, reflecting upon experience)

The motivation:

Is the motivation externally or internally driven?
To what extend is collaboration in itself motivating?
Is there a common ground established to convey the best practices through the means of these tools?

The infrastructure:

Which online collaboration tools are provided?
Are there any issues with regard to the ownership and control of the tools?
Are the tools 'context-specific' or imagined to transgress boundaries of the volunteering practice?

The resources/content:

Who controls the content/resources?
To what extent is 'collaborative remixability' supported?
Who defines the different roles related to competence, expertise, authority, accountability and copyright?

Table 5. Questions for exploring online collaboration for 'Volunteering 2.0'

powerfully illustrated through this research study and reflects that participants have developed a range of sophisticated and tailored strategies for using technology to support their collaboration. Furthermore, the research study has shown that not only do participants find ways of integrating these tools into their practice of volunteering with a degree of digital agility, but they are also making definite digital decisions as to how to approach issues.

As successful interaction between users requires a certain amount of common ground the volunteers tried to build this common ground by conveying the best practices through the means of these tools. By perceiving the educational affordance of the tools and creating learning resources that can be accessed through these tools, they went beyond its original design, tapping into the open potential of the tool.

Due to the perceived social affordances of the online collaboration tools, participants were able to move beyond the traditional boundaries of the volunteering practice. Throughout the process, the emphasis was on the establishment of a common ground by conveying the best practices through the means of these tools.

These efforts signalled readiness for the practice of 'Volunteering 2.0'. This refers to the combination of the technological affordances of social software, with new informal learning agendas and priorities, that offers the potential for transformational shifts in employee volunteering practices. Typical digital artefacts as a result of the online collaboration throughout the CSC program included project websites, e-portfolio development, and streaming video instruction, all of which fostered consistent learning.

Various benefits of the use of online collaboration tools have been noted during the CSC program: internal documentation and exchange of individual knowledge and information; easier, more efficient and more open ways of communication; collaborative work; increased creativity and innovative potential. The program participants mostly noted the following benefits related to the use of online collaboration tools throughout the program: the level of engagement, and effectiveness that the tools provide; their 'cathartic' nature as they offered the

opportunity to reflect on their experiences and to learn about different point of views; the sociability aspects of these tools and their support for conversational interaction; the opportunity provided to facilitate and validate understanding. Challenges are the corresponding change of organisational culture, the integration of certain groups of employees (e.g. senior experts) and some technical issues (e.g. software integration).

This research study provided a snapshot of employees' experiences of the use of online collaboration tools over a short time frame. It would be valuable to carry out a more in-depth longitudinal study which followed a series of employees over a longer time period in terms of their use of technologies and how this changes perhaps beyond into their working practice.

In the final analysis, the incorporation of online collaboration tools into the CSC program is about change in the way the volunteers collaborate with each other, not about technology. This collaborative phenomenon raises the point about socio-technical systems thinking, which stipulates that technology in itself has little meaning. Within the context of employee volunteering, technology gains its value with regard to the collaborative interactions of the volunteers. It's about people and their behavior, not computers. While the lack of digital tools is a barrier to change, the presence of digital tools does not guarantee change.

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